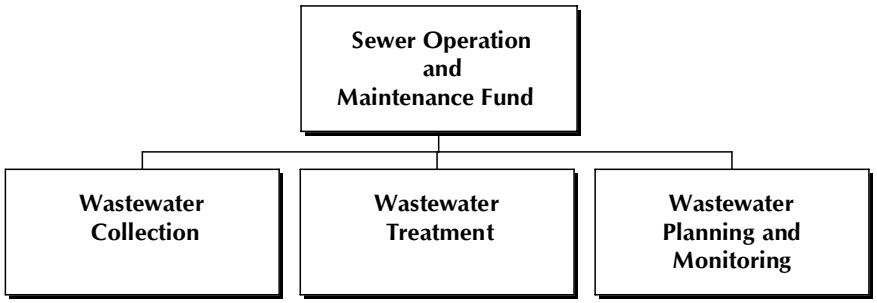
Fund 401
Sewer Operation and Maintenance



Mission

To safely collect and treat wastewater in compliance with all regulatory requirements using state-of-the-art technology in the most cost-effective manner in order to improve the environment and enhance the quality of life in Fairfax County.

Focus

The Wastewater Management Program includes wastewater collection and conveyance, wastewater treatment, planning and monitoring program areas. The primary functions are to strategically plan, efficiently operate and effectively maintain the wastewater system in the best interest of the County and its customers. Funding for sewer operations and maintenance are financed by a transfer from Fund 400, Sewer Revenue which is used to credit all operating revenues of the system including availability fees and sewer service charges associated with the program.

This program operates and maintains nearly 3,300 miles of sewer, 64 pump stations and 53 flow-metering stations. Treatment of wastewater generated is provided primarily through five regional wastewater collection and treatment plants. The regional treatment approach takes advantage of economies of scale in wastewater treatment and ensures the economical and efficient operation and management of the program.

One of the five regional plants is the County's owned and operated Noman M. Cole, Jr. Pollution Control Plant (NCPCP), which is currently permitted to treat 67 million gallons per day (mgd) of flow. Other regional facilities include the District of Columbia Water and Sewer Authority's Blue Plains Treatment Plant with 31 mgd capacity; Alexandria Sanitation Authority's Treatment Plant with 32.4 mgd capacity; Upper Occoquan Sewage Authority's Treatment Plant with 27.6 mgd capacity; and Arlington County's Treatment Plant with 3 mgd capacity. Fairfax County utilizes all of these facilities to accommodate a total capacity of 161 mgd.

The agency has identified a number of trends that influence the operation and maintenance of the sanitary sewer system. The major trends over the next two to five years include the following:

Chesapeake Bay Water Quality Program Requirements - The new Chesapeake Bay water quality program requires reductions in the amount of nutrient pollutants discharged from wastewater treatment facilities. In December 2004, the state notified the County that the renewal of County's National Pollutant Discharge Elimination System (NPDES) permit will include a requirement that nutrient removal be performed at the "Limits of Technology." Current technology allows for discharge limits of less than 3.0 milligrams per liter of nitrogen and 0.1 milligrams per liter for phosphorus. The County has the capability to meet the current nitrogen removal standard of 8.0 milligrams per liter. A phased approach is recommended to renovate and upgrade current plant facilities to accommodate new more stringent nutrient discharge requirements. The Sewer Service Charge rate will increase from $3.28 to $3.50 per 1,000 gallons of water consumption in FY 2007. This equates to a 6.75 percent increase in rates and will result in an anticipated increase in the annual cost to the typical household of $16.72. The higher increase in Sewer Service Charges is a direct result of the Chesapeake Bay federally mandated requirements which will result in the renovation and rehabilitation of existing treatment facilities. Funding of $150 million is recommended through the sale of bonds in FY 2007

to provide maximum flexibility to meet new state regulatory requirements in the Wastewater Management Program (WWM).

Capacity, Maintenance, Operation, and Management (CMOM) - The United States Environmental Protection Agency (USEPA) has been planning for several years to promulgate sanitary sewer overflow (SSO) regulations, which would require municipalities to develop and implement a CMOM program to eliminate any sewer overflows and backups from the wastewater collection systems. The proposed SSO rule and the CMOM program would significantly affect program costs.

Integration of Information Technology - The Geographic Information System (GIS), the Supervisory Control and Data Acquisition (SCADA) system and the Infrastructure Computerized Maintenance Management System (ICMMS) require integration for optimal use. Computing and information technology are an integral part of every aspect of the Wastewater Management Program operations. Today's high customer expectations and increasing reliance on consistent 24-hour services, lead to an increasing dependence on and expectation for stable and reliable integrated information technologies that infuse the business process. Presently, the GIS, the SCADA system, the ICMMS system and other critical business systems operate independently and do not share information. Future customer service needs will require a full enterprise integration of the critical information technology systems to reduce total cost of ownership, increase availability of critical business data in the right format, and improve the quality and delivery of services to sewer customers.

THINKING STRATEGICALLY

Strategic issues for the Department include:

- Providing superior wastewater services to achieve a pure and natural state of air and water;
- Improving customer service, customer strategy and satisfaction by providing more comprehensive employee training;
- Expanding the Health and Safety Program through the improvement of the Emergency Planning and Response areas to ensure a safe work environment;
- Evaluating the program's financial management strategies to ensure proper cash management and debt capacity; and
- Utilizing automated technologies to enhance the existing computer systems to increase infrastructure rehabilitation projects in the most effective manner.

Capital Improvements - Reinvestment in the sewer system infrastructure ensures optimum operation of all wastewater facilities. This initiative, closely related to CMOM endeavors, emphasizes capital improvements to wastewater collection and treatment facilities to meet requirements of the future sanitary sewer overflow regulations by the USEPA. The program continues to take a proactive stance toward infrastructure rehabilitation; however, CMOM regulations could greatly affect operations.

Asset Management Program - As a result of evaluating the program's financial management strategies, an Asset Management Program was developed. The first phase aligned the program's capital asset policies and procedures with the County's fixed asset policies and developed a process in which to evaluate the program's infrastructure. The second phase was to develop criteria to identify the program's critical assets. After the criteria was tested and accepted it was applied to all program assets. Phase three will be the condition assessment of all assets beginning with the most critical assets.

The Wastewater Management Program is funded by revenues generated by the customers of the sanitary sewer system and recorded in Fund 400, Sewer Revenue. Sewer service charges support system operation and maintenance costs, debt service payments, and capital projects attributable to supporting or improving wastewater treatment services for existing customers. Availability fees support a proportional share of system costs and capital projects attributable to growth of the system required to support new customers. Existing customers are defined as those who have paid an availability fee for access to the system and receive wastewater treatment services. New customers are those who have not paid the availability fee. Upon payment of the availability fee and connection to the system, a new customer becomes an existing customer.

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The County allocates expenses, interest income, bond proceeds, debt service payments, capital improvement project costs and funding, and operating transfers between existing and new users of the system. In accordance with the County's "Growth Pays for Growth Policy", both existing and new customers must pay for their share of the system's total annual revenue requirements.

New Initiatives and Recent Accomplishments in Support of the Fairfax County Vision

Practicing Environmental Stewardship	Recent Success	FY 2007 Initiative
Continue to be a leader in protecting the Chesapeake Bay. Received the AMSA Gold Award for 100 percent compliance with its NPDES discharge permit limits for Calendar Year 2004. Only 256 of the 16,000 wastewater treatment plants in the United States have received this award.	☑	☑
Received a Business for the Bay Environmental Excellence Award for the nutrient removal program at the Noman M. Cole, Jr. Pollution Control Plant.	☑	
Accepted by the Commonwealth of Virginia, Department of Environmental (DEQ) as an Environmental Enterprise (E2) participant into the Virginia environmental excellence program. The agency plans to seek an upgraded Exemplary Environmental Enterprise (E3) rating in the future.	☑	☑
Conducted exemplary work in analytical monitoring for the protection of the environment and the Chesapeake Bay, resulting in the receipt of the Laboratory Analyst Excellence Award from Virginia Water Environment Association/Virginia Wastewater Association (VWEA/VWWA).	☑	
Continue to reduce nutrients discharged to the Chesapeake Bay by using the new Biological Nutrient Removal (BNR) facilities which reduces total nitrogen discharge concentration from 8 milligrams per liter to 3 milligrams per liter.	☑	☑
Maintain the sewer collection and conveyance system in accordance with the “best business practices” operating condition by rehabilitating, repairing and replacing failing pumps, sewer lines and force mains.	☑	☑
Achieved 100 percent compliance with the newly established regulatory requirements under Title V of the Clean Air Act.	☑	
Fully treated wastewater to a level better than all state requirements.	☑	☑

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Creating a Culture of Engagement	Recent Success	FY 2007 Initiative
Initiate an "Adopt a School" program to educate and inform the community about the role wastewater treatment plays in protecting the environment.	☑	☑
Participated in the Lorton Citizens' Alliance Team (LCAT) which consists of members from the community, Wastewater Program and the Solid Waste Management Program to address the community's environmental concerns.	☑	
Continue to participate in neighborhood sponsored activities such as Adopt-A-Highway Clean-Up and Pohick Creek Clean-Up.	☑	☑
Exercising Corporate Stewardship	**Recent Success**	**FY 2007 Initiative**
Continue to implement the Capital Asset Management Program to identify major rehabilitation and replacement projects over the next 5 to 10 years under the Capital Improvement Program.	☑	☑
Continue to maintain Standard and Poor's, as well as Fitch's, bond rating of Triple A, the best financial rating a utility can receive.	☑	☑
Continue to operate the program in a manner that ensures it remains one of the lowest cost pollution control service providers in the region.	☑	☑
Continue to seek and receive a Government Finance Officers Association (GFOA) Certificate of Achievement for Excellence in Financial Reporting for the Wastewater Management Program's Comprehensive Annual Financial Report.	☑	☑

Budget and Staff Resources

Agency Summary				
Category	FY 2005 Actual	FY 2006 Adopted Budget Plan	FY 2006 Revised Budget Plan	FY 2007 Advertised Budget Plan
Authorized Positions/Staff Years				
Regular	333/ 332.5	333/ 332.5	331/ 330.5	331/ 330.5
Expenditures:				
Personnel Services	$19,892,314	$24,295,163	$24,295,163	$25,290,848
Operating Expenses	46,738,246	51,208,337	54,206,440	52,762,934
Capital Equipment	370,170	461,155	1,423,210	797,550
Subtotal	**$67,000,730**	**$75,964,655**	**$79,924,813**	**$78,851,332**
Less:				
Recovered Costs	($575,811)	($600,834)	($600,834)	($614,126)
Total Expenditures	**$66,424,919**	**$75,363,821**	**$79,323,979**	**$78,237,206**

FY 2007 Funding Adjustments

The following funding adjustments from the FY 2006 Revised Budget Plan are necessary to support the FY 2007 program:

- **Employee Compensation** **$995,685**
  An increase of $995,685 in Personnel Services associated with salary adjustments necessary to support the County's compensation program. Funding provides for an increase in the shift differential rate to $0.90 for the evening shift and $1.30 for the midnight shift.

- **Operating Expenses** **($1,443,506)**
  A net decrease of $1,443,506 in Operating Expenses is primarily due to a decrease of $1,653,901 for one-time expenses as part of the FY 2005 Carryover Review, partially offset by an increase of $204,765 in Department of Vehicle Services charges based on anticipated fuel, vehicle replacement and maintenance costs, and an increase of $5,630 for Information Technology charges based on the agency's historic usage.

- **Recovered Costs** **($13,292)**
  An increase of $13,292 in Recovered Costs is primarily due to the FY 2007 projected salaries of recoverable positions.

- **Capital Equipment** **$797,550**
  Funding of $797,550 has been included for new and replacement equipment. New equipment totals $127,510 for 2 adaptors, 5 servers, 1 server rack, and 2 bacteria analyzers to measure bacteria concentrations as required by the Department of Environmental Quality (DEQ). Replacement items total $670,040 for the replacement of vehicles and equipment based on age, mileage and repair cost considerations.

Changes to FY 2006 Adopted Budget Plan

The following funding adjustments reflect all approved changes in the FY 2006 Revised Budget Plan since passage of the FY 2006 Adopted Budget Plan. Included are all adjustments made as part of the FY 2005 Carryover Review and all other approved changes through December 31, 2005:

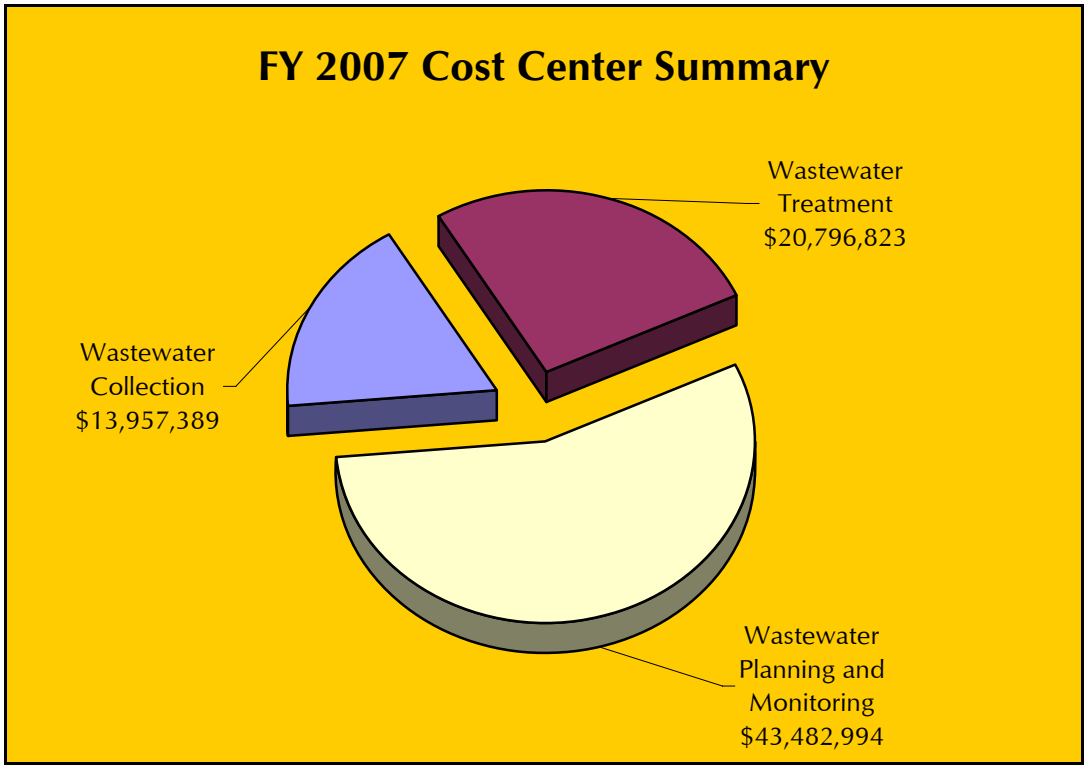
- **Carryover Adjustments** **$3,960,158**
  At the *FY 2005 Carryover Review*, the Board of Supervisors approved an increase of $3,960,158, including $3,079,270 in Operating Expenses and $880,888 in Capital Equipment due to encumbered carryover.

- **Position Adjustments** **$0**
  In order to address evolving requirements in the Stormwater Management Program, 1/1.0 SYE position within the Wastewater Collection Division and 1/1.0 SYE within the Wastewater Treatment Division were transferred to the Stormwater Management Division and the Office of Capital Facilities within the Department of Public Works and Environmental Services. These positions will assist in the implementation of the stormwater management initiatives throughout the County.

Fund 401
Sewer Operation and Maintenance

Cost Centers

The three cost centers within Fund 401, Sewer Operation and Maintenance, are Wastewater Collection, Wastewater Treatment and Wastewater Planning and Monitoring. These cost centers work together to fulfill the mission of the sanitary sewer system and carry out the designated initiatives for the fiscal year.



Wastewater Collection

Funding Summary				
Category	FY 2005 Actual	FY 2006 Adopted Budget Plan	FY 2006 Revised Budget Plan	FY 2007 Advertised Budget Plan
Authorized Positions/Staff Years				
Regular	145/ 145	145/ 145	144/ 144	144/ 144
Total Expenditures	**$11,214,727**	**$12,895,008**	**$13,528,501**	**$13,957,389**

Position Summary

	Collection Program		Gravity Sewers		Pumping Stations
1	Director	1	Engineer IV	1	Engineer IV
1	Management Analyst III	1	Maintenance Superintendent	1	Engineer III
1	Training Specialist III	4	Senior Maintenance Supervisors	1	Industrial Electrician Supervisor
1	Network/Telecomm Analyst I	4	Engineering Technicians III	1	Instrumentation Supervisor
1	Network/Telecomm Analyst II	6	Engineering Technicians II	1	Pump Station Supervisor
1	Safety Analyst	1	Map Drafter	1	Engineer II
1	Warehouse Supervisor	13	Engineering Technicians I	1	Industrial Electrician III
1	Warehouse Specialist	3	Heavy Equipment Operators	3	Instrumentation Technicians III
5	Admin. Assistants III	16	Maintenance Crew Chiefs	5	Pump Station Operators III
4	Admin. Assistants II	3	Motor Equipment Operators	2	Industrial Electricians II
1	Storekeeper	4	Truck Drivers	3	Plant Mechanics III
		12	Senior Maintenance Workers	3	Instrumentation Technicians II
		20	Maintenance Workers	1	Welder II
				7	Pump Station Operators II
				4	Plant Mechanics II
				2	Instrumentation Technicians I
				1	Maintenance Trade Helper II

TOTAL POSITIONS
144 Positions / 144.0 Staff Years

Goal

To operate, maintain, and repair the County's wastewater collection system in a manner that protects Fairfax County citizens and the environment.

Wastewater Treatment

Funding Summary				
Category	FY 2005 Actual	FY 2006 Adopted Budget Plan	FY 2006 Revised Budget Plan	FY 2007 Advertised Budget Plan
Authorized Positions/Staff Years				
Regular	145/ 145	145/ 145	144/ 144	144/ 144
Total Expenditures	**$16,173,947**	**$19,794,464**	**$20,429,963**	**$20,796,823**

Fund 401
Sewer Operation and Maintenance

Position Summary

Noman M. Cole, Jr., Pollution Control Plant

1 Director
1 Programmer Analyst IV
1 Database Administrator I
1 Engineer IV
1 Engineer II
1 Safety Analyst
2 Network/Telecommunications Analysts II
1 Engineering Technician III
1 Warehouse Supervisor
1 Heavy Equipment Supervisor
2 Inf. Technology Technicians II
1 Engineering Drafter
1 Administrative Assistant IV
1 Warehouse Specialist
3 Heavy Equipment Operators
3 Administrative Assistants III
1 Warehouse Worker-Driver
2 Storekeepers

Operations

1 Engineer IV
1 Engineer III
1 Engineer II
1 Plant Operations Superintendent
6 Plant Operations Supervisors
8 Senior Plant Operators
17 Lead Plant Operators
32 Plant Operators
1 Engineering Technician II

Maintenance

1 Engineer IV
1 Plant Maintenance Superintendent
1 Industrial Electrician Supervisor
1 Instrumentation Supervisor
1 Plant Maintenance Supervisor
1 Chief Building Maintenance
4 Industrial Electricians III
3 Instrumentation Technicians III
1 Senior Maintenance Supervisor
3 Industrial Electricians II
7 Plant Mechanics III
5 Instrumentation Technicians II
2 Welders II
9 Plant Mechanics II
3 Painters I
1 Industrial Electrician I
1 Maintenance Trade Helper II
1 Senior Maintenance Worker
2 Maintenance Workers
2 Custodians II
1 Heating/Maintenance Worker

TOTAL POSITIONS
144 Positions / 144.0 Staff Years

Goal

To ensure efficient and effective operation and maintenance of the County's wastewater treatment facilities within the laws and standards established by the Congress of the United States in Public Law 92-500 which designates regulatory powers to the USEPA and the Virginia Department of Environmental Quality.

Wastewater Planning and Monitoring

Funding Summary

Category	FY 2005 Actual	FY 2006 Adopted Budget Plan	FY 2006 Revised Budget Plan	FY 2007 Advertised Budget Plan
Authorized Positions/Staff Years				
Regular	43/ 42.5	43/ 42.5	43/ 42.5	43/ 42.5
Total Expenditures	**$39,036,245**	**$42,674,349**	**$45,365,515**	**$43,482,994**

Position Summary

Financial Management and Planning

1 Director
1 Management Analyst IV
1 Fiscal Administrator
1 Management Analyst III
1 Programmer Analyst III
1 Accountant II
2 Engineering Technicians II
1 Administrative Assistant IV
1 Administrative Assistant III PT
2 Administrative Assistants II

Engineering Planning and Analysis

1 Engineer IV
1 Engineer III
1 Geog. Info. Spatial Analyst II
2 Geog. Info. System Technicians
4 Engineers II
3 Engineering Technicians III

Environmental Monitoring

1 Environmental Services Director
2 Asst. Environmental Services Directors
3 Environmental Health Specialists II
2 Environmental Technologists III
3 Environmental Technologists II
7 Environmental Technologists I
1 Administrative Assistant II

TOTAL POSITIONS
43 Positions / 42.5 Staff Years

PT Denotes Part-Time Position

Fund 401
Sewer Operation and Maintenance

Goal

To manage sewer revenue collection; to monitor and report County sewage flows treated at non-County facilities; to control, plan, and develop the Wastewater Management Program; and to environmentally monitor County treatment facilities, other publicly and privately-owned treatment facilities in the program, and nearby embayments.

Key Performance Measures

Objectives

- To achieve a pure and natural state of air and water in Fairfax County by achieving performance results at Wastewater Management Program facilities better than state air and water permits require 100 percent of the time.

- To maintain the sewer infrastructure effectively by reducing blockages that cause sewer back-ups to less than the 5-year rolling annual average. The 5-year rolling annual average is the average of current year and four previous years of data.

- To ensure efficient wastewater collection and treatment services by providing service to customers at rates that are the lowest in the area.

- To provide excellent financial and asset management by ensuring a debt coverage ratio greater than 1.0.

Indicator	Prior Year Actuals			Current Estimate	Future Estimate
	FY 2003 Actual	FY 2004 Actual	FY 2005 Estimate/Actual	FY 2006	FY 2007
Output:					
Total average daily wastewater flow treated (million gallons)	106.0	108.3	110.0 / 104.2	109.6	110.5
Emergency repair work orders processed	2,011	2,299	2,100 / 2,465	2,100	2,100
Service trouble calls received	1,657	1,584	1,500 / 1,222	1,500	1,500
Operating Reserve maintained (millions)	$17.2	$17.9	$18.7 / $18.7	$18.8	$19.5
Efficiency:					
Percent of treatment capacity available for growth	28%	27%	30% / 35%	33%	33%
Emergency repairs, as a percent of total work orders	4.7%	4.5%	4.8% / 9.7%	10.0%	10.0%
Sewer Service Billing Rate, $/1,000 gallons	$2.95	$3.03	$3.20 / $3.20	$3.28	$3.50

Fund 401
Sewer Operation and Maintenance

Indicator	Prior Year Actuals FY 2003 Actual	FY 2004 Actual	FY 2005 Estimate/Actual	Current Estimate FY 2006	Future Estimate FY 2007
Service Quality:					
Sanitary sewer overflows (SSOs) per year (FY 2005, 5-yr. avg. = 20)	37	16	28 / 17	20	20
Percent of customers responded to within 24 hours	100%	100%	100% / 100%	100%	100%
Percentage of sewage back-ups responded to within 2 hours	100%	100%	100% / 100%	100%	100%
Odor complaints per year (FY 2005, 5-yr. avg. = 45)	41	25	55 / 33	40	40
Percent Capital Improvement Program funded	100%	100%	100% / 100%	100%	100%
Outcome:					
Compliance with Title V air permit and state water quality permit	100%	100%	100% / 100%	100%	100%
Blockages causing sewer back-ups per year (FY 2005, 5-yr. avg. = 34)	96	27	35 / 13	25	25
Average household sewer bill compared to other providers in the area	Lowest	Lowest	Lowest / Lowest	Lowest	Lowest
Debt Coverage Ratio: (Revenue - Operating Cost/Debt)	1.24	1.50	1.50 / 1.90	1.70	1.30

Performance Measurement Results

In FY 2005, there were 346,287 (households and businesses) connections to the sanitary sewer system, an increase of 4,582 connections over FY 2004. Approximately 84 percent of Fairfax County households are connected to the sewer system. Due to the addition of odor containment and treatment facilities, odor complaints continue to be significantly lower in FY 2005. These odor control facilities include tank covers for the gravity thickeners and packed tower scrubbers on sludge storage tanks, nine carbon absorption odor control scrubbers at various locations on the plant, tank covers for the primary settling tanks and packed tower scrubbers to treat the odorous air from the tanks, and afterburners for the incineration exhaust system. Additional facilities are provided in FY 2007 as recommended in the "Odor Control Master Plan".

Wastewater flows decreased slightly due to reduced water consumption from the County's water conservation efforts. Sanitary sewer overflows continue to decrease from last year mainly due to the increased efforts by the Wastewater Collection including staff monitoring trouble areas, replacing sewer line sags and realigning sewer lines, and utilizing temporary pumps in place to divert flow during severe storm events. Similarly, the decrease in sanitary sewage blockages was based on the agency's efforts to monitor the sewer program and keep the sewer system clean of grease and debris.

When comparing average annual sewer service billings for the regional jurisdictions, Fairfax County has the lowest average annual sewer service billings at $249. Other regional jurisdictions range from $263 to $400. Rates are effective as of October 1, 2005 (FY 2006). The average sewer service billings for the other regional jurisdictions have been developed by applying each jurisdiction's sewer service rate to appropriate Single Family Residence Equivalents (SFRE) water usage determined from an analysis of Fairfax Water's historical average water usage records for SFREs. Based on the latest rate comparison, Fairfax County had the lowest annual sewer service charge. The program is able to maintain its competitive rates while providing quality service to its customers, protecting the environment, and maintaining sufficient financial resources to fully fund the program's initiatives.

Fund 401
Sewer Operation and Maintenance

FUND STATEMENT

Fund Type G40, Enterprise Funds **Fund 401, Sewer Operation and Maintenance**

	FY 2005 Actual	FY 2006 Adopted Budget Plan	FY 2006 Revised Budget Plan	FY 2007 Advertised Budget Plan
Beginning Balance	**$4,398,681**	**$1,177,213**	**$10,569,842**	**$379,320**
Transfer In:				
Sewer Revenue (400)	$72,596,080	$74,565,928	$69,133,457	$78,008,575
Total Transfer In	$72,596,080	$74,565,928	$69,133,457	$78,008,575
Total Available	**$76,994,761**	**$75,743,141**	**$79,703,299**	**$78,387,895**
Expenditures:				
Personnel Services	$19,892,314	$24,295,163	$24,295,163	$25,290,848
Operating Expenses	46,738,246	51,208,337	54,206,440	52,762,934
Recovered Costs	(575,811)	(600,834)	(600,834)	(614,126)
Capital Equipment	370,170	461,155	1,423,210	797,550
Total Expenditures	$66,424,919	$75,363,821	$79,323,979	$78,237,206
Total Disbursements	**$66,424,919**	**$75,363,821**	**$79,323,979**	**$78,237,206**
Ending Balance[1]	**$10,569,842**	**$379,320**	**$379,320**	**$150,689**
PC Replacement Reserve[2]	$252,030	$379,320	$379,320	$150,689
Unreserved Balance	**$10,317,812**	**$0**	**$0**	**$0**

[1] The Wastewater Management Program maintains fund balances at adequate levels relative to projected operation and maintenance expenses. These costs change annually; therefore, funding for sewer operations and maintenance is carried forward each fiscal year, and ending balances fluctuate, reflecting the carryover of these funds.

[2] The PC Replacement Reserve was established for the timely replacement of computer equipment.